

PHASE II – OVERHEAD ELECTRIC TRANSMISSION LINE MACRO CORRIDOR SELECTION PROCESS

The list of the Overhead Electric Transmission Line Corridor Selection Process tasks follows:

1. *Identify Macro Corridors*
2. *Define the study area*
3. *Conduct site visits and evaluate the Macro Corridors*
4. *Prepare Electric Alternative Evaluation Study and Macro Corridor Study Report*
5. Conduct RUS Scoping Meeting
6. Generate Alternative Corridors
7. Develop Alternative Routes within the Alternative Corridors
8. Analyze Alternative Routes
9. Select the Preferred Route
10. Conduct Title 22 Public Meeting
11. Acquire permission to survey
12. Conduct on-site ecology and cultural surveys
13. Prepare an Environmental Assessment
14. Acquire regulatory permits

Tasks 1 – 4 of the Overhead Electric Transmission Line Corridor Selection Process are described in this Macro Corridor Study Report.

Task 1: Identify Macro Corridors

Macro Corridor Generation uses existing digital data layers that allow for the quick identification of the most suitable locations for transmission lines in the project area. Development of Macro Corridors is derived from land cover/land use classification of satellite imagery and other off-the-shelf digital data. The GIS Siting Model, that is called Corridor Analyst, identifies Macro Corridors for transmission lines that minimize impacts to the built and the natural environment. In many cases, paralleling existing transmission lines or road rights-of-way can minimize impacts to these resources. Corridor Analyst eliminates those areas where there is no viable option for building a transmission line. The Macro Corridors define the area where orthophotography and other detailed data collection and analysis will occur in future tasks.

Macro Corridor Scenarios and Weights

To locate the Macro Corridors in the most suitable areas, the project team identified three Macro Corridor GIS Siting Model scenarios:

1. Rebuilding or paralleling existing transmission lines,
2. Parallel existing roads, and
3. Crossing undeveloped land (cross-country)

Next, a weighting system was designed to identify areas where overhead electric transmission line development is most or least suitable. A suitability value is assigned to each GIS feature in the Macro Corridor GIS database. The assigned values range from 1 – 9 reflecting the suitability of each grid cell. A value of 1 identifies an area of greatest suitability and 9 an area of least suitability. A feature is suitable if a transmission corridor through it is feasible with little impact, for example, open land. A feature is considered unsuitable if a transmission line going through it would have some adverse consequences, such as densely populated areas. Numbers between 1 and 9 are used to represent intermediate degrees of suitability.

Description of Suitability Values

The assigned 1 to 9 values reflect the degree of suitability each data set presents for the location of a transmission line. Descriptions of the suitability categories follow:

High Suitability for Overhead Electric Transmission Lines (suitability ranking of 1, 2 and 3):

These are areas that do not contain known sensitive resources or physical constraints, and therefore should be considered as suitable areas for the development of Macro Corridors. Examples might include undeveloped land, pasture, or rebuilding an existing transmission line.

Moderate Suitability for Overhead Electric Transmission Lines (suitability ranking of 4, 5 and 6):

These are areas that contain resources or land uses that are moderately sensitive to disturbance or that present a moderate physical constraint to overhead electric transmission line construction and operation. Resource conflicts or physical constraints in these areas can generally be reduced or avoided by using standard mitigation measures. Examples might include primary road crossings.

Low Suitability for Overhead Electric Transmission Lines (suitability ranking of 7, 8 and 9):

These are areas that contain resources or land uses that present a potential for significant impacts that cannot be readily mitigated. Locating a transmission line in these areas would require careful siting or special design measures. Examples might include forested wetlands or dense urban areas. Note that these areas can be crossed but it is not desirable to do so if other alternatives are available.

Avoidance Areas

These are areas that contain resources or land uses protected by legislation or administrative policy, or that present a severe physical constraint to transmission line construction and operation. As a result, it would be very difficult to locate a transmission line in these areas. If possible, they should be avoided in the development of alternative corridors. An example might include a listed National Register of Historic District (NRHP) historic district.

2004 LAND COVER CLASSIFICATION	SOURCE	X-COUNTRY
Spannable Open Water	LANDSAT	7
Other Utility Corridors	LANDSAT	5
Urban	LANDSAT	9
Open Land	LANDSAT	1
Surface Mining/ Rock Outcrop	LANDSAT	9
Forest	LANDSAT	1
Agriculture	LANDSAT	1
Wetland	LANDSAT	9
Transmission Corridors	ITS*	5
Primary Roads	GDT **	5
Secondary Roads	GDT	5
Interstate	GDT	9
Slopes > 30 degrees	USGS - DEM	9

Avoidance Features		
Airports	GDT	
Military Facilities	GDT	
NRHP Listed Historic Structures	NPS	
NRHP Listed Historic Districts	NPS	
NRHP Listed Archaeology Sites	NPS	
NRHP Listed Archaeology Districts	NPS	
State and National Park Interiors	NPS	
Non-spannable Water Bodies	USGS	
Wildlife Refuges	GA DNR	
USFS Wilderness Areas	GA DNR	
EPA Superfund Site	EPA	
Mines and Quarries	LANDSAT	

* Georgia Integrated Transmission System

** Georgia Department of Transportation

This data was entered into the Corridor Analyst GIS database. The GIS system provides geographically referenced digital information for analysis of the study area. GIS technology enables the display of multiple layers of information allowing simultaneous consideration of various factors during the corridor selection process. The database will continue to be used throughout the project.

Macro Corridor Composite Suitability Surface

Once all the data for the project area are collected, entered into the Macro Corridor GIS database, and numeric values assigned to each feature, a composite suitability surface is created for the entire study area. The purpose of the composite suitability surface is to provide an overview of the study area. Each grid cell in the composite suitability surface is assigned the ranking associated with its underlying land cover type.

A separate suitability surface is developed for each of the three types of routes:

1. Rebuilding or paralleling existing transmission lines,
2. Paralleling existing road, and
3. Crossing undeveloped land (cross-country)

Only the cross-country Macro Corridor model was developed for East Walton – Rockville 500 kV because there are no existing transmission lines in these study areas to rebuild or parallel and two lane, winding rural roads are not an appropriate location for a 500 kV transmission line.

Only road routes and cross-country Macro Corridor Model were developed for the East Walton-Bostwick-230 kV, East Walton-Jack’s Creek and East Walton-Bethabara Transmission Lines because there are no existing lines in this study area to rebuild or parallel.

The Macro Corridor GIS Siting Model uses a “Least Cost Path” (LCP) algorithm to work its way across the cross-country composite suitability surface. The Least Cost Path Calculation Diagram below illustrates the operation of the LCP algorithm. If the transmission line must go from Point A to Point B, the LCP algorithm will find the path across the accumulated surface (represented

by suitability values in the grid cells) that minimizes the sum of the values along that corridor. Any other path will result in a larger suitability sum and, therefore, be less optimal. For example, the “optimal” route, indicated in green, has a suitability sum of 21 ($3+1+6+1+7+3$) compared to a sum of 35 ($3+1+20+8+3$) for the most direct route. The lower sum indicates higher overall suitability of the green route.

4	5	7	6	3
14	20	10	1	2
8	4	20	6	9
6	8	1	12	10
3	7	8	2	4

*Macro Corridor Generation
Least Cost Path Calculation Diagram*

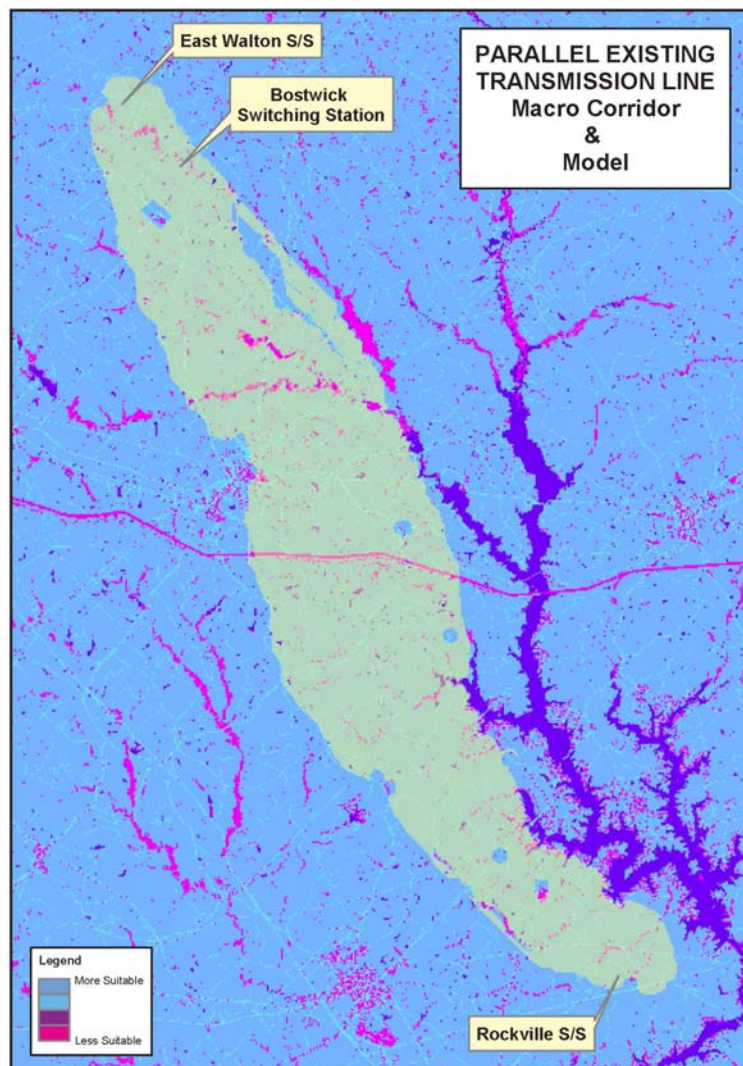
The sum of the LCP calculation is a function of the number of cells crossed (distance) and the values in the individual cells. The path will turn to avoid less preferred or avoidance areas (high “cost” cells), but still follow the most direct path possible. Note that, if all the cells have the same score, the resulting path between the two points would be a straight line.

**East Walton-Rockville 500 kV Transmission Line
East Walton-Bostwick 230 kV Transmission Line
Generating Macro Corridors from the Composite Suitability Surface**

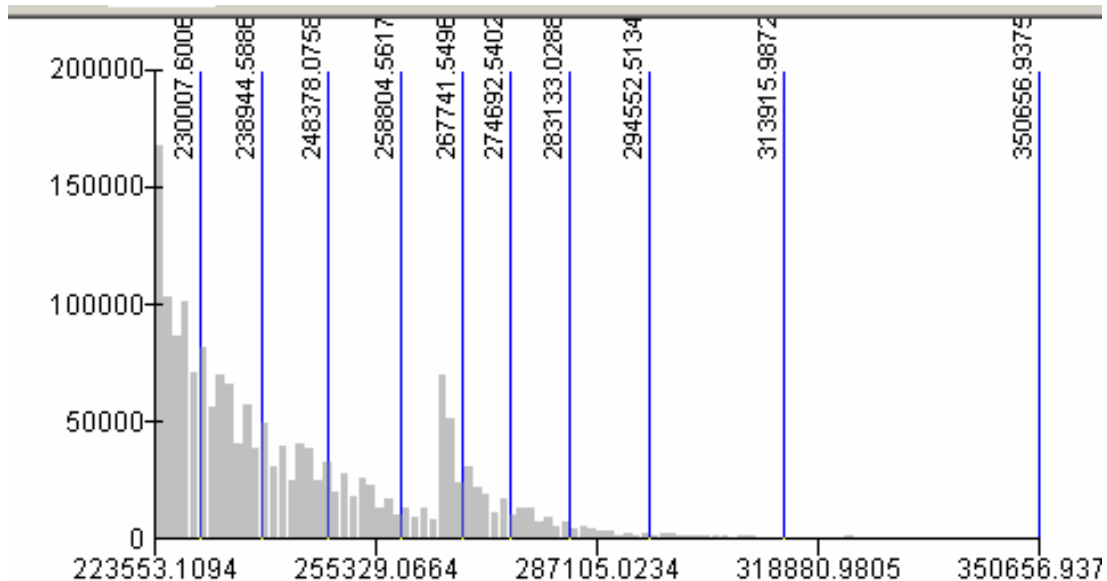
Only the Cross-Country Composite Suitability Surface and histogram were developed for the East Walton-Rockville 500 kV Transmission Line Project because there are no existing transmission lines to rebuild or parallel and two-lane, winding rural roads are not an appropriate location for a 500 kV transmission line.

This histogram shows the cumulative value of each of the grid cells within the project study area. It is used to identify the most suitable areas for the Cross-Country Macro Corridor, crossing undeveloped or least developed lands (see the Cross-Country Macro Corridor Map and Histogram below).

The Macro Corridor boundary is determined by the first statistical break in its histogram. A statistical break occurs when the grid cell value, as shown on the X-axis of the histogram, abruptly decreases.



East Walton – Rockville 500 kV Transmission Line Macro Corridor



East Walton – Rockville 500 kV Transmission Line Histogram

In the Cross-Country Macro Corridor Histogram, the X-axis represents “grid cell values” and the Y-axis represents the “number of grid cells” These figures show that a statistical break occurs after five percent on the X-axis, the grid cells values. This five percent area is the area of greatest suitability for Macro Corridor generation. The variable-width Macro Corridors may have a width of as much as a mile or greater for segments that have substantial length through areas of high suitability, while still allowing enough width in the low suitability areas for the right-of-way requirements of the project.

Description of Macro Corridors

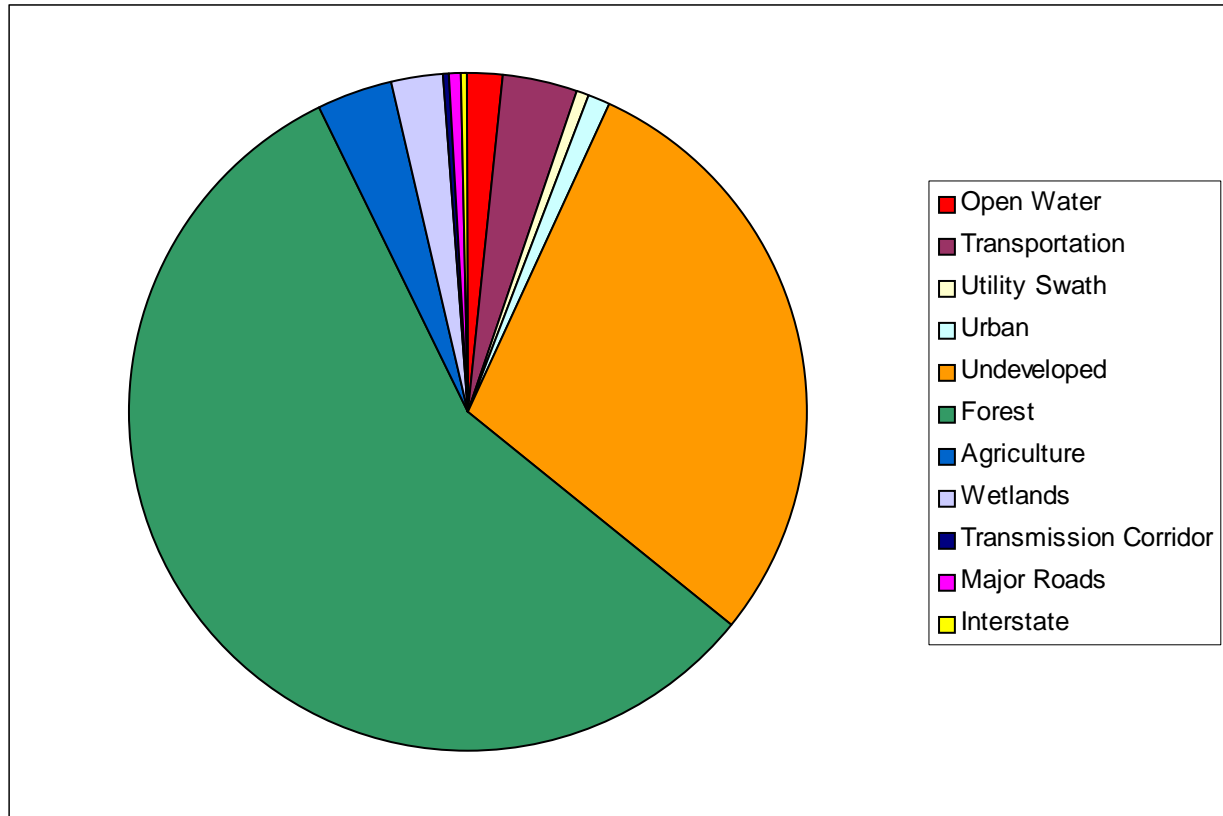
The Macro Corridors were developed based on the areas of greatest opportunity in the suitability grid. The suitability grid maximizes use of the most suitable areas for a transmission line and minimizes potential impacts to land use, land cover, environmental and cultural resources.

Macro Corridor Land Use/Land Cover Statistics

The satellite imagery was used to generate the land use and land cover for the East Walton-Bostwick-Rockville Macro Corridor areas. The majority of the study area, 89.41% or 118,331.82 acres, consists of established rural land uses including 56.97% forest, 3.65% agriculture and 28.79% undeveloped land. Rural residential development exists throughout the Macro Corridor area.

**EAST WALTON-ROCKVILLE MACRO CORRIDOR LAND
USE-LAND COVER STATISTICS**

Land Cover	Cell Count	Acres	Percent
Open Water	9076	2018.448	1.53%
Transportation	22863	5084.593	3.84%
Utility Swath	2239	497.9401	0.38%
Urban	7178	1596.344	1.21%
Undeveloped	171373	38112.32	28.79%
Forest	338978	75386.66	56.97%
Agriculture	21731	4832.843	3.65%
Wetlands	14245	3168.002	2.39%
Transmission Corridor	1841	409.4273	0.31%
Major Roads	4661	1036.578	0.78%
Interstate	870	193.4827	0.15%



Cross-Country Macro Corridor

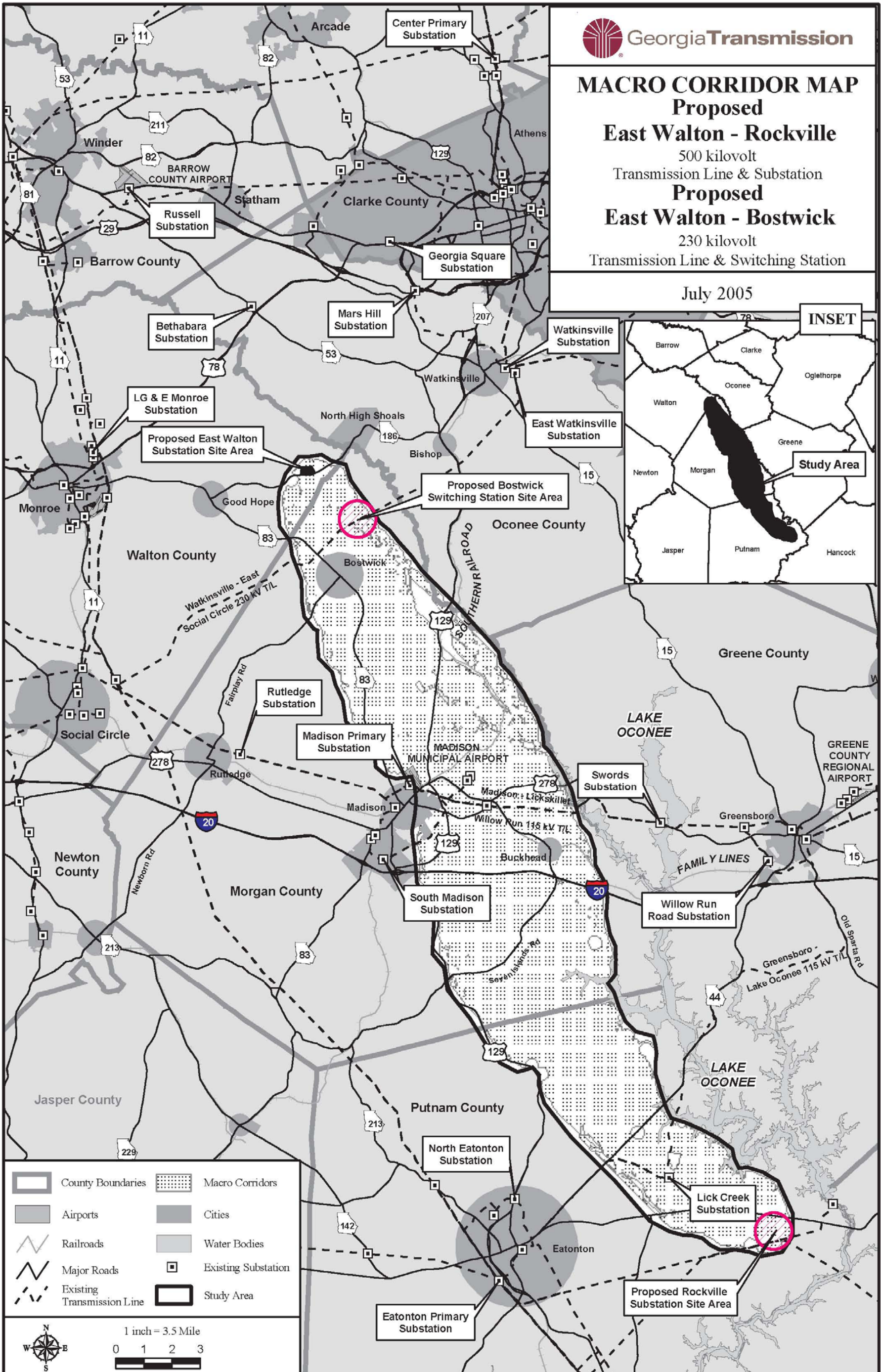
The Cross-Country Macro Corridor starts at the proposed East Walton 500/230 kV Substation and travels in a southeast direction for approximately 4 miles to the intersection with the existing East Social Circle-East Watkinsville 230 kV Transmission Line where the Bostwick Switching Station would be located. Then the Macro Corridor continues approximately 35.12 miles to the proposed Rockville 500 kV Switching Station site. The proposed East Walton Substation site location would be in the vicinity of the intersection of Jones Woods Road and Highway 186 in Walton County, Georgia. The proposed Rockville Switching Station would be located 3.0 miles southwest of Walton Dam and 0.4 mile east of the intersection of the existing Scherer - Warthen 500 kV and Eatonton Primary – Walton Dam 230 kV Transmission Lines in Putnam County, Georgia.

The proposed East Walton-Rockville 500 kV Transmission Line Macro Corridor crosses approximately 1.23 miles of Walton County, approximately 25.6 miles of Morgan County and approximately 13.86 miles of Putnam County. The proposed East Walton-Bostwick 230 kV Transmission Line would be sited adjacent to the East Walton-Rockville 500 kV Transmission Line; therefore it is contained in the same Macro Corridor. The East Walton-Bostwick 230 kV Transmission Line Macro Corridor crosses approx. 1.23 miles of Walton County and approximately 2.24 miles of Morgan County.

The Cross-Country Macro Corridor crosses the hydrology, transportation and recreation resources listed in the chart below.

Hydrology
Rivers
Apalachee River
Streams > 5-cfs
Jacks Creek
Beaver Dam Creek
Big Sandy Creek
Hard Labor Creek
Sugar Creek
Lick Creek
Crooked Creek
Floodplains Crossed
Jacks Creek
Apalachee River
Beaver Dam Creek

Transportation
State Routes
SR 24
SR 186
SR 83
SR 12
SR 402
SR 44
SR 16
Railroads
Southern Railroad
Family Lines Railroad



Task 2A: Define the East Walton – Rockville 500 kV Transmission Line Project Study Area

The study area is defined by the outer boundaries of the Macro Corridors. The boundaries allow for the development of all feasible corridors, provide adequate opportunity to minimize significant environmental impacts and focus the study efforts to an area necessary to accomplish the selection of a network of alternative corridors and a preferred route.

The study area for the East Walton-Rockville 500 kV Transmission Line Project includes portions of Walton, Morgan and Putnam Counties, Georgia. The study area for the East Walton-Bostwick 230 kV Transmission Line includes portions of Walton and Morgan Counties, Georgia. The East Walton-Bostwick Transmission Line would parallel the northern 3.25 miles of the proposed East Walton-Rockville Transmission Line.

The definition of the study area began with the generation of a Macro Corridor between the proposed East Walton 500/230 kV Substation and the proposed Rockville 500 kV Switching Station. The proposed East Walton Substation site is located in Walton County in the vicinity of the intersection of Jones Woods Road and Highway 186. The proposed Rockville Switching Station would be located 3.0 miles southwest of Walton Dam and 0.4 miles east of the intersection of the existing Scherer - Warthen 500 kV and Eatonton Primary – Walton Dam 230 kV Transmission Lines in Putnam County, Georgia.

The boundaries of the Putnam County portion of the study area are Lake Oconee on the east, Eatonton, GA, Oconee National Forest and the Central Georgia Branch Station Wildlife Management Area on the west, and, the Scherer – Warthen 500 kV and Eatonton Primary – Walton Dam 230 kV Transmission Lines and Walton Dam on the south. The Morgan County section of the study area is located between Lake Oconee, the Apalachee River and the Oconee National Forest on the east and Eatonton Highway, Howard Tamplin Highway and Madison, GA on the west. Bostwick, GA is located 2.53 miles from the proposed East Walton Substation. The East Walton Substation would be located in the vicinity of the intersection of Highway 186 and Jones Woods Road in Walton County.

The study area is approximately 213 square miles (136,591 acres) within a perimeter of 88 miles. The proposed East Walton-Rockville 500 kV Transmission Line would be approximately 55 miles long. The East Walton-Bostwick 230 kV Transmission Line would be approximately 3.25 miles long.

East Walton – Rockville Study Area Description

This section provides a description of the physical features of the study area. It also comments briefly on other considerations, such as, community benefits that are important but not included in the GIS database.

Land Use/Land Cover

Satellite imagery was used to generate the land use and land cover for the proposed East Walton-Rockville 500 kV study area. The majority of the study area, 89.41% or 118,331.82 acres, consists of established rural land uses including 56.97% forest, 3.65% agriculture and 28.79% undeveloped land. The population centers are Bostwick, Madison and Buckhead, Georgia.

Transportation

The East Walton-Bostwick-Rockville transportation corridors include the State Routes listed in the chart below.

State Routes
SR 24
SR 186
SR 83
SR 12
SR 402
SR 44
SR 16

The major impact to the existing transportation system in the East Walton-Bostwick-Rockville area would be where the proposed transmission line crosses roads. Transportation of equipment to the job site could temporarily affect traffic during loading and unloading.

Airports

There are no airports in the study area. The Madison Municipal Airport is on the eastern edge of Madison, Georgia and the western edge of the study area. The airport is an avoidance area and is not included in the study area.

Terrain

The study area terrain is rolling with a high elevation of 801 feet and low of 400 feet.



East Walton-Rockville 500 kV Transmission Line Macro Corridor Terrain Model

Hydrology

The Apalachee River and Lake Oconee are the eastern boundaries of the study area.

Streams with > 5 cfs Flow Rates

GTC collected data and mapped streams in the project area with a >5 cubic feet per second (cfs) flow rate because those streams are more difficult to cross during construction and maintenance. Digital Elevation Models (DEMs) were obtained from the Georgia GIS Data Clearinghouse and used in Corridor Analyst to delineate watersheds from various points along the project area streams. The methodology was used to determine land areas needed to generate 5-cfs stream flows is described in the next paragraph.

A mean annual runoff of 0.9 cfs/mi² for streams in this basin was used to determine the land area of a basin that will be drained before the water reaches a flow of 5 cfs. This measure was obtained from the USGS Map of Georgia Showing Average Annual Runoff. It was determined that the land area required to generate such a flow in this basin is approximately 5.56 mi². Drainage basins were delineated to find those with total land areas at this limit. Streams below the lower boundary of each basin and subsequent downstream reaches were selected as those with flows of greater than 5 cfs.

The East Walton-Bostwick-Rockville study area streams with greater than 5-cfs flow are listed in the chart below.

Streams with > 5-cfs
Jacks Creek
Beaverdam Creek
Big Sandy Creek
Hard Labor Creek
Sugar Creek
Lick Creek
Crooked Creek

Floodplains

Executive Order 11988 directs Federal Agencies to avoid to the greatest extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. The location of floodplains and other flood hazard areas is identified using Insurance Rate Maps produced by the Federal Emergency Management Agency (FEMA).

Putnam and Morgan Counties participate in the Federal Emergency Management Agency's National Flood Insurance Program. Floodplains in the other county in the study area were interpreted from USGS 7.5 min Quadrangles. The study corridor encounters floodplains associated with the streams listed below.

Floodplains Crossed
Jacks Creek
Apalachee River
Beaverdam Creek

Wetlands

Section 404 of the Clean Water Act charges the U.S. Army Corp of Engineers with the

regulation of discharges of “dredged or fill” material into waters of the United States, including wetlands and other special aquatic sites.

USFWS National Wetland Inventory (NWI) Maps were used to identify wetland areas during Macro Corridor identification activities. When the preferred corridor is selected, GTC will contract with qualified consultants to conduct a wetland delineation of all wetland resources within that corridor.

Sensitive Areas

There are two National Forests in Georgia, the Chattahoochee National Forest and the Oconee National Forest. The proposed project is located in the vicinity of the Oconee National Forest and is not near the Chattahoochee National Forest.

There are three National Wildlife Refuges (NWR) managed by the U.S. Fish and Wildlife Service in Georgia, the Okefenokee National Wildlife Refuge, Piedmont National Wildlife Refuge and the Savannah National Wildlife Refuge. The proposed project is not located in or near any of these National Wildlife Refuges.

Throughout Georgia, the Parks, Recreation and Historic Sites Division of the Georgia Department of Natural Resources operate 44 State parks and 14 Historic Sites. The State of Georgia operates the Hard Labor Creek State Park that is located 2.6 miles west of the study area.

The National Park Service (NPS) of the U.S. Department of the Interior (USDI) operates 10 units in the State of Georgia, including facilities such as National Battlefield Parks, National Historic Sites and National Monuments. There are no NPS managed properties in or near the study area.

Recreation Resources

There are no Recreation Resources in the study area.

Archaeology and Historic Structures

Section 106 of the National Historic Preservation Act (NHPA) requires that any Federal agency review the impact of any undertaking (construction, loan guarantees, contract approvals, permit approvals, etc.) on historic properties. Historic properties, for the purposes of Section 106 review, are those properties listed in or eligible for listing in the National Register of Historic Places. The Section 106 review process is administered by the Advisory Council on Historic Preservation that in turn delegated this responsibility to the Historic Preservation Division of the Georgia Department of Natural Resources (GADNR). The GADNR is responsible for implementing 36 CFR Part 800, the Protection of Historic Properties.

Brockington & Associates, Inc. and Historic Preservation Consulting provided information on listed National Register of Historic Places historic and prehistoric cultural resources located within the project boundary. This information was identified through background research at the State Site Files Database maintained by the Department of Anthropology, University of Georgia and the Historic Preservation Division of the Georgia Department of Natural Resources.

Electric Alternative Evaluation Study and Macro Corridor Study Report

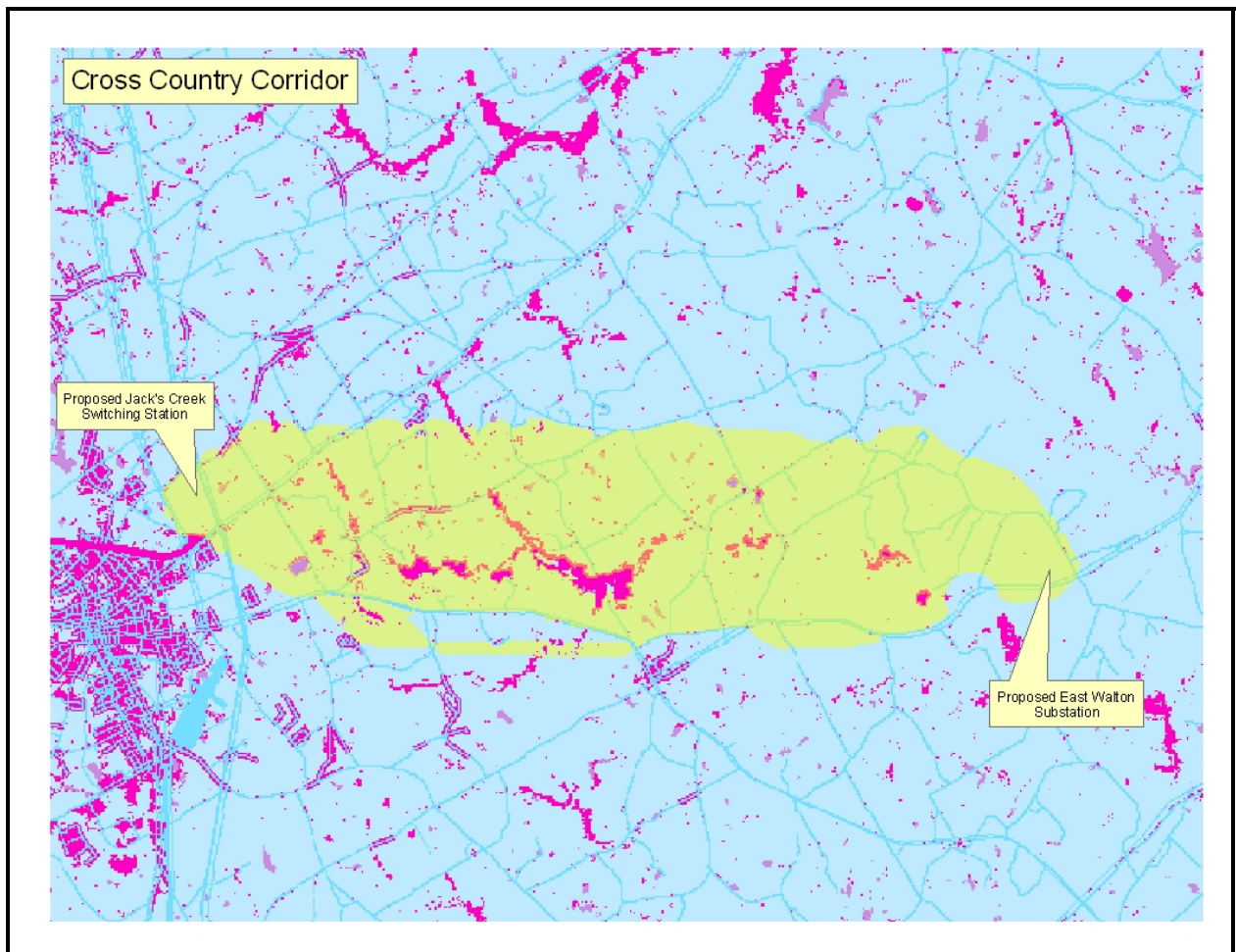
There are three NRHP listed historic districts, Bostwick, Buckhead and Madison, Georgia and no NRHP listed archaeology sites in the study area.

Task 2B: East Walton-Jack's Creek 230 kV Transmission Line Generating Macro Corridors from the Composite Suitability Surface

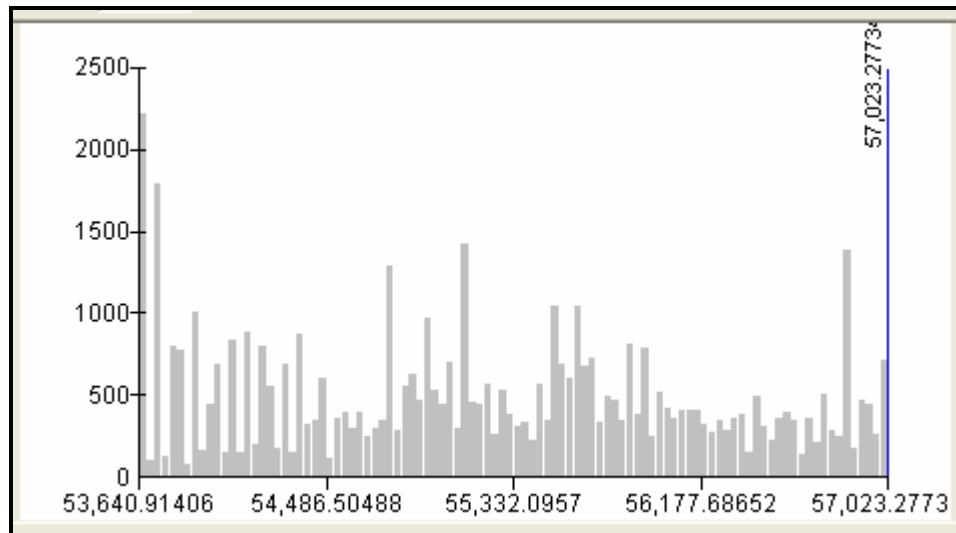
The Roadside and Cross-Country Composite Suitability Surfaces and histograms were developed for the East Walton-Jack's Creek 230 kV Transmission Line project. There are no existing transmission lines to rebuild or parallel.

This histogram shows the cumulative value of each of the grid cells within this project study area. It is used to identify the most suitable areas for the Roadside and Cross-Country, crossing undeveloped or least developed lands, Macro Corridor (see the Macro Corridor Map and Histogram below).

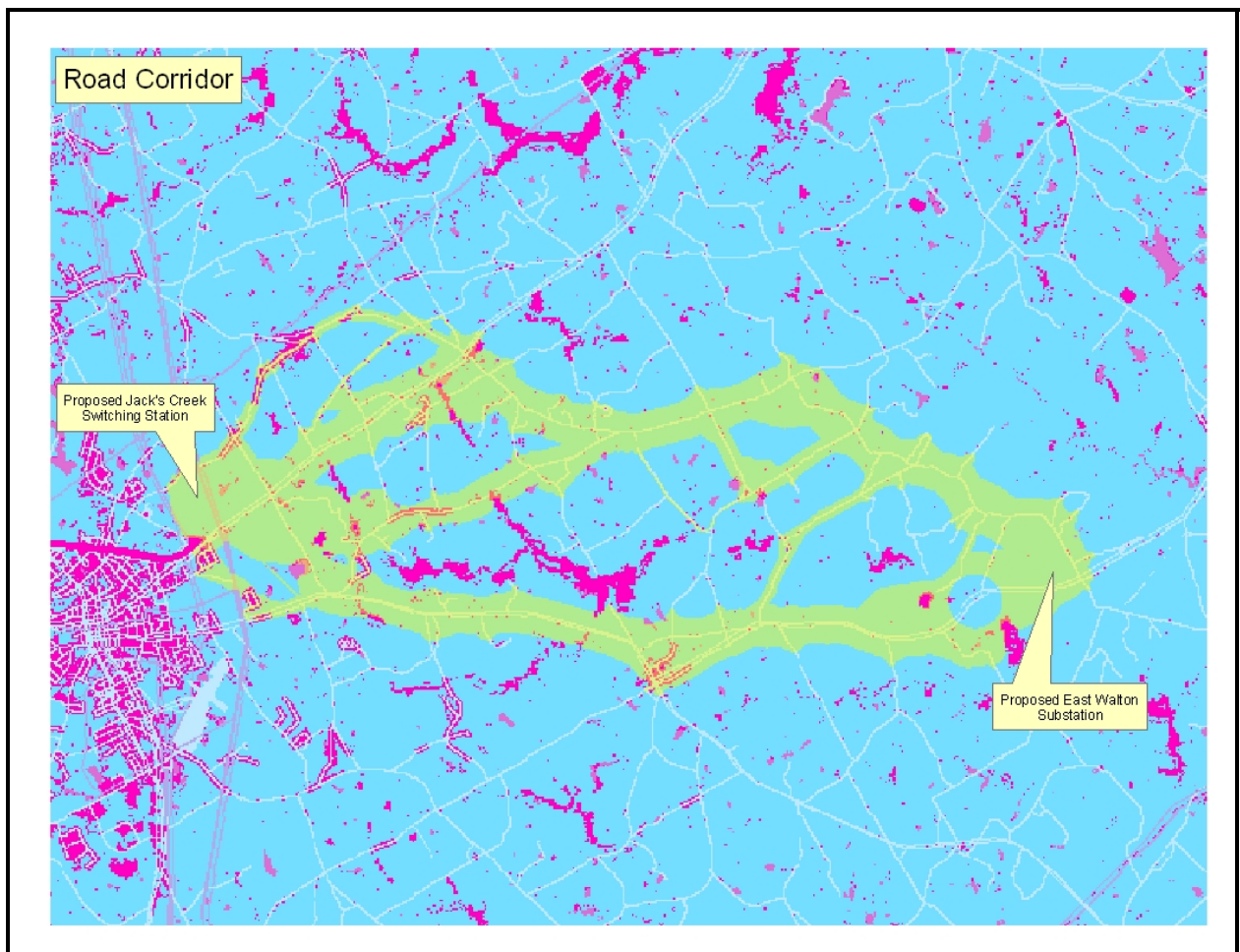
The Macro Corridor boundary is determined by the first statistical break in its histogram. A statistical break occurs when the grid cell value, as shown on the X-axis of the histogram, abruptly decreases.



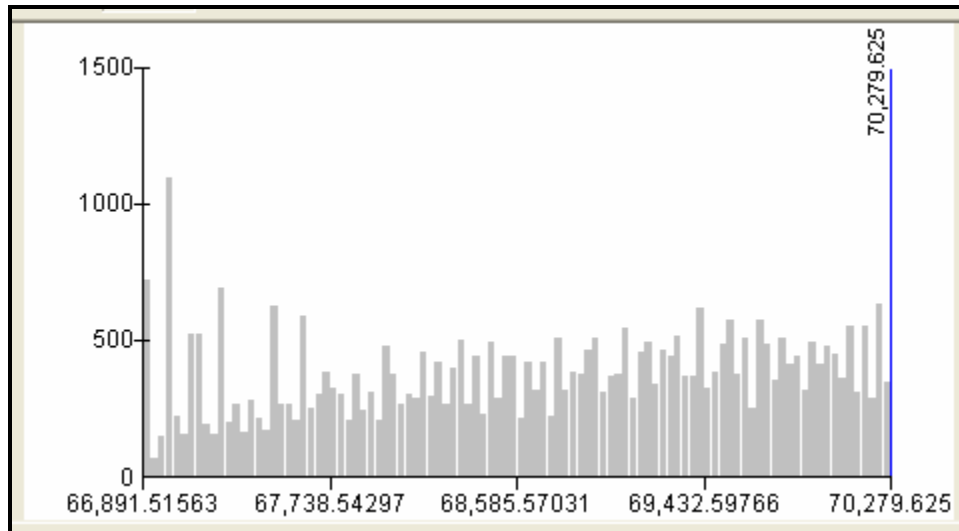
East Walton – Jack's Creek 230 kV Transmission Line Cross-Country Macro Corridor



East Walton – Jack's Creek 230 kV Transmission Line Cross-Country
Macro Corridor Histogram



East Walton – Jack’s Creek 230 kV Transmission Line Roadside Macro Corridor



East Walton – Jack’s Creek 230 kV Transmission Line Roadside Histogram

In the Cross-Country and Roadside Macro Corridor Histograms, the X-axis represents “grid cell values” and the Y-axis represents the “number of grid cells” These figures show that a statistical break occurs after five percent on the X-axis, the grid cells values. This five percent area is the area of greatest suitability for Macro Corridor generation. The variable-width Macro Corridors may have a width of as much as a mile or greater for segments that have substantial length through areas of high suitability, while still allowing enough width in the low suitability areas for the right-of-way requirements of the project.

Description of East Walton-Jack’s Creek Macro Corridor

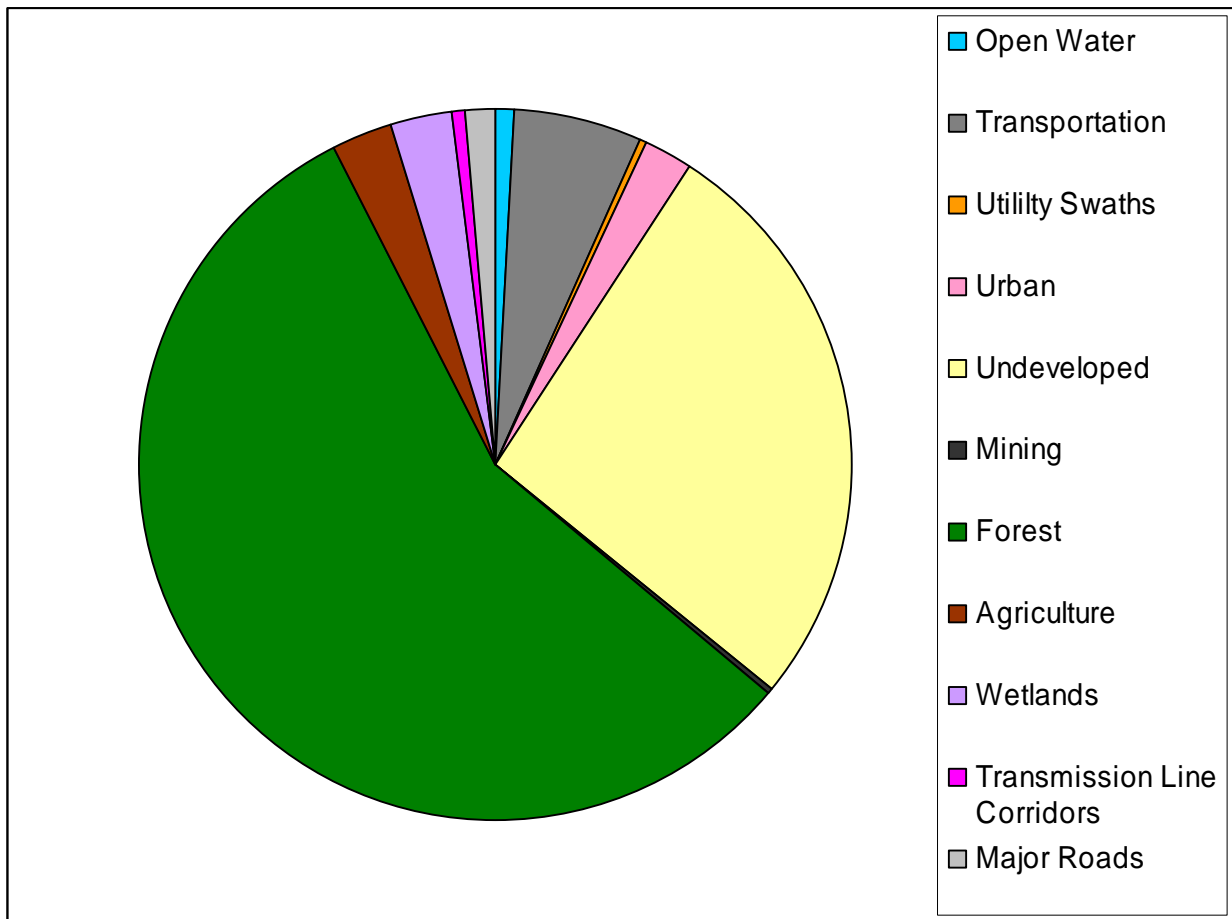
The Macro Corridors were developed based on the areas of greatest opportunity in the suitability grid. The suitability grid maximizes use of the most suitable areas for a transmission line and minimizes potential impacts to land use, land cover, environmental and cultural resources.

Macro Corridor Land Use/Land Cover Statistics

The satellite imagery was used to generate the land use and land cover for the East Walton-Jack’s Creek Macro Corridor areas. The majority of the study area, 85.8% or 131.65 acres, consists of established rural land uses including 56.3% forest, 2.8% agriculture and 26.7% undeveloped land. Rural residential development exists throughout the Macro Corridor area.

**EAST WALTON-JACK'S CREEK MACRO CORRIDOR
LAND USE-LAND COVER STATISTICS**

LULC	Cell Count	Acres	Percent
Open Water	566	1.30	0.8%
Transportation	3972	9.12	5.9%
Utility Swaths	26	0.06	0.0%
Urban	1477	3.39	2.2%
Undeveloped	17844	40.96	26.7%
Mining	259	0.59	0.4%
Forest	37613	86.35	56.3%
Agriculture	1889	4.34	2.8%
Wetlands	1866	4.28	2.8%
Transmission Line Corridors	393	0.90	0.6%
Major Roads	937	2.15	1.4%



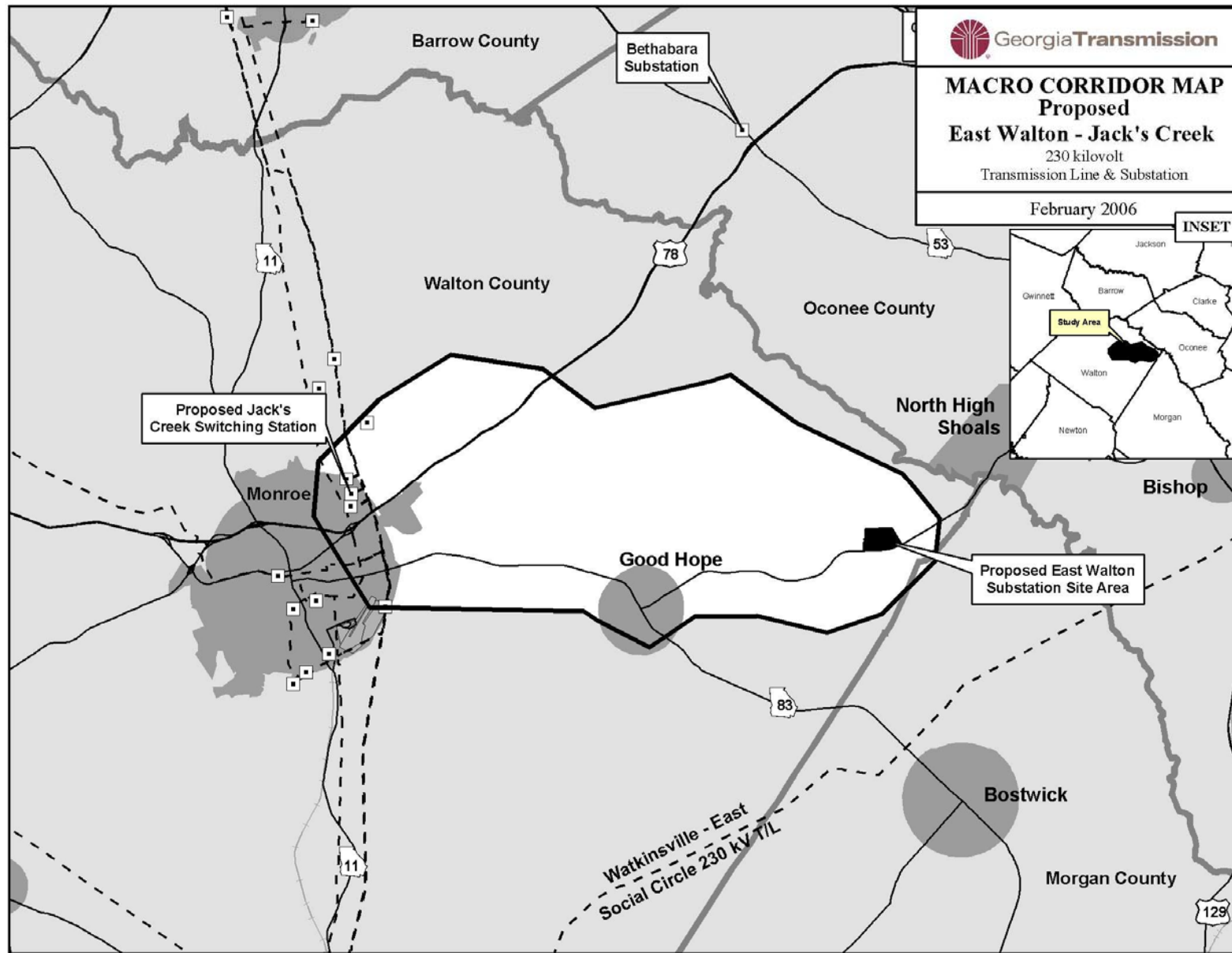
Cross-Country Macro Corridor Description

The Cross-Country Macro Corridor starts at the proposed East Walton 500/230 kV Substation and travels in a west direction for approximately 10.5 miles to the proposed Jack's Creek 230 kV substation (to be built by MEAG). This Macro Corridor is located within Walton County.

The Cross-Country Macro Corridor crosses the hydrology, transportation and recreation resources listed in the chart below.

Hydrology
Streams > 5-cfs
Grubby Creek
Indian Creek
Jack's Creek
Rocky Branch
Turkey Creek
Floodplains Crossed
Grubby Creek
Indian Creek
Jack's Creek
Rocky Branch
Turkey Creek

Transportation
State Routes
SR 83
SR 186
US 78 SR 10



Task 2B: Define the East Walton – Jack’s Creek Project Study Area

The study area is defined by the outer boundaries of the Macro Corridors. The boundaries allow for the development of all feasible corridors, provide adequate opportunity to minimize significant environmental impacts and focus the study efforts to an area necessary to accomplish the selection of a network of alternative corridors and a preferred route.

The study area for the East Walton-Jack’s Creek 230 kV Transmission Line Project is located within Walton County, Georgia.

The definition of the study area began with the generation of a Macro Corridor between the proposed East Walton 500/230 kV Substation and the proposed Jack’s Creek 230 kV Switching Station. The proposed East Walton Substation site is located in Walton County at the intersection of Jones Woods Road and Highway 186. The proposed Jack’s Creek Switching Station would be located west of City of Monroe near the existing LGE Monroe electrical facilities. The study area is approximately 37 square miles (23,665 acres) within a perimeter of 26 miles.

Study Area Description

This section provides a description of the physical features of the study area. It also comments briefly on other considerations, such as community benefits that are important but not included in the GIS database.

Land Use/Land Cover

The satellite imagery was used to generate the land use and land cover for the proposed East Walton-Jack’s Creek 230 kV study area. The majority of the study area, 85.8% or 131.65 acres, consists of established rural land uses including 56.3% forest, 2.8% agriculture and 26.7% undeveloped land. The population centers are Monroe and Good Hope, Georgia.

Transportation

The East Walton-Jack’s Creek transportation corridors include the State Routes listed in the chart below.

State Routes
SR 83
SR 186
US 78 SR 10

The major impact to the existing transportation system in the East Walton-Jack’s Creek area would be where the proposed transmission line crosses roads. Transportation of equipment to the job site could temporarily affect traffic during loading and unloading.

Airports

There are no airports in the study area. Monroe – Walton County Airport is approximately 1700 feet southwest of the Macro Corridors.

Terrain

The study area terrain is rolling with a high elevation of 988 feet and low of 642 feet.



East Walton-Jack's Creek Transmission Line Macro Corridor Terrain Model

Hydrology

Streams with > 5 cfs Flow Rates

GTC collected data and mapped streams in the project area with a >5 cubic feet per second (cfs) flow rate because those streams are more difficult to cross during construction and maintenance. Digital Elevation Models (DEMs) were obtained from the Georgia GIS Data Clearinghouse and used in Corridor Analyst to delineate watersheds from various points along the project area streams. The methodology was used to determine land areas needed to generate 5 cfs stream flows is described in the next paragraph.

A mean annual runoff of 0.9 cfs/mi² for streams in this basin was used to determine the land area of a basin that will be drained before the water reaches a flow of 5 cfs. This measure was obtained from the USGS Map of Georgia Showing Average Annual Runoff. It was determined that the land area required to generate such a flow in this basin is approximately 5.56 mi². Drainage basins were delineated to find those with total land areas at this limit. Streams below the lower boundary of each basin and subsequent downstream reaches were selected as those with flows of greater than 5 cfs.

The East Walton-Jack's Creek study area streams with greater than 5 cfs flow are listed in the chart below.

Streams with > 5-cfs
Grubby Creek
Indian Creek
Jack's Creek
Rocky Branch
Turkey Creek

Floodplains

Executive Order 11988 directs Federal Agencies to avoid to the greatest extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. The location of floodplains and other flood hazard areas is identified using Insurance Rate Maps produced by the Federal Emergency Management Agency (FEMA).

Walton County participates in the Federal Emergency Management Agency's National Flood Insurance Program. The Macro Corridor encounters floodplains associated with the streams listed below.

Floodplains Crossed
Grubby Creek
Indian Creek
Jack's Creek
Rocky Branch
Turkey Creek

Wetlands

Section 404 of the Clean Water Act charges the U.S. Army Corp of Engineers with the regulation of discharges of "dredged or fill" material into waters of the United States, including wetlands and other special aquatic sites.

USFWS National Wetland Inventory (NWI) Maps were used to identify wetland areas during Macro Corridor identification activities. When the preferred corridor is selected, GTC will contract with qualified consultants to conduct a wetland delineation of all wetland resources within that corridor.

Sensitive Areas

There are two National Forests in Georgia, the Chattahoochee National Forest and the Oconee National Forest. The proposed project is located in the vicinity of the Oconee National Forest and is not near the Chattahoochee National Forest.

There are three National Wildlife Refuges (NWR) managed by the U.S. Fish and Wildlife Service in Georgia, the Okefenokee National Wildlife Refuge, Piedmont National Wildlife Refuge and the Savannah National Wildlife Refuge. The proposed project is not located in or near any of these National Wildlife Refuges.

Throughout Georgia, the Parks, Recreation and Historic Sites Division of the Georgia Department of Natural Resources operate 44 State parks and 14 Historic Sites. The State of Georgia operates the Hard Labor Creek State Park that is located 6.5 miles south of the study area.

The National Park Service (NPS) of the U.S. Department of the Interior (USDI) operates 10 units in the State of Georgia, including facilities such as National Battlefield Parks, National Historic Sites and National Monuments. There are no NPS managed properties in or near the study area.

Recreation Resources

There are no Recreation Resources in the study area.

Archaeology and Historic Structures

Section 106 of the National Historic Preservation Act (NHPA) requires that any Federal agency review the impact of any undertaking (construction, loan guarantees, contract approvals, permit approvals, etc.) on historic properties. Historic properties, for the purposes of Section 106

review, are those properties listed in or eligible for listing in the National Register of Historic Places. The Section 106 review process is administered by the Advisory Council on Historic Preservation that in turn delegated this responsibility to the Historic Preservation Division of the Georgia Department of Natural Resources (GADNR). The GADNR is responsible for implementing 36 CFR Part 800, the Protection of Historic Properties.

Brockington & Associates, Inc. and Historic Preservation Consulting provided information on listed National Register of Historic Places historic and prehistoric cultural resources located within the project boundary. This information was identified through background research at the State Site Files Database maintained by the Department of Anthropology, University of Georgia and the Historic Preservation Division of the Georgia Department of Natural Resources.

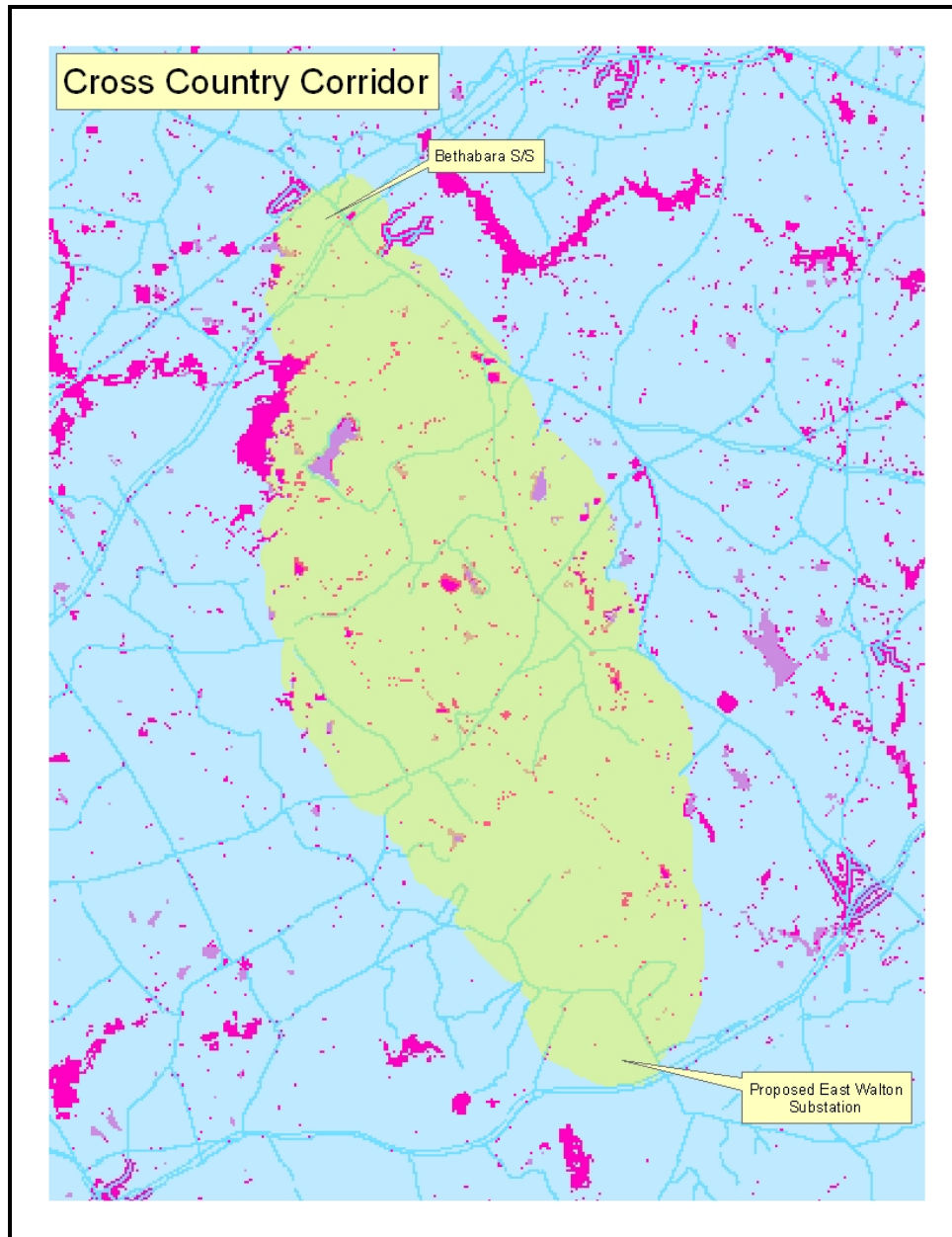
There is one NRHP listed historic structure (the Jones, Walter, Rock House), no NRHP-eligible historic structures, and six potential (not officially determined) NRHP-listed archaeology sites in the study area.

Task 2C: East Walton-Bethabara #1 230 kV Transmission Line Generating Macro Corridors from the Composite Suitability Surface

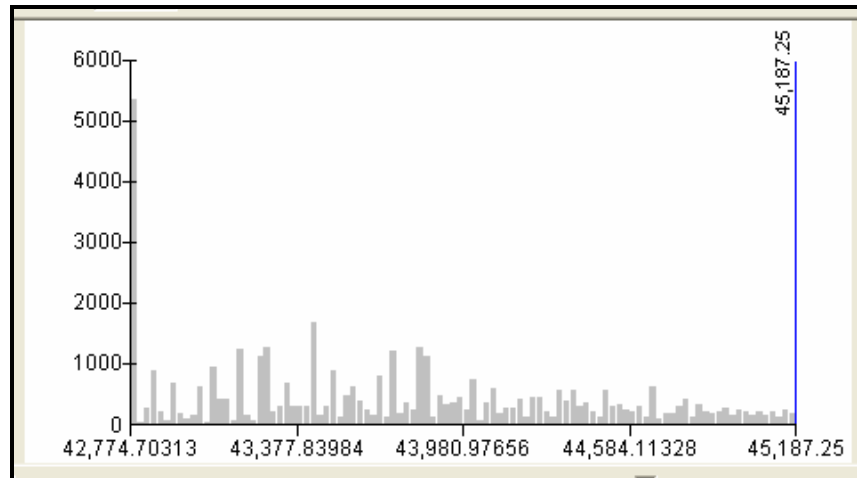
The Roadside and Cross-Country Composite Suitability Surfaces and histograms were developed for the East Walton-Bethabara #1 230 kV Transmission Line project because there are no existing transmission lines to rebuild or parallel.

This histogram shows the cumulative value of each of the grid cells within this project study area. It is used to identify the most suitable areas for the Roadside and Cross-Country, crossing undeveloped or least developed lands, Macro Corridor (see the Macro Corridor Maps and Histograms below).

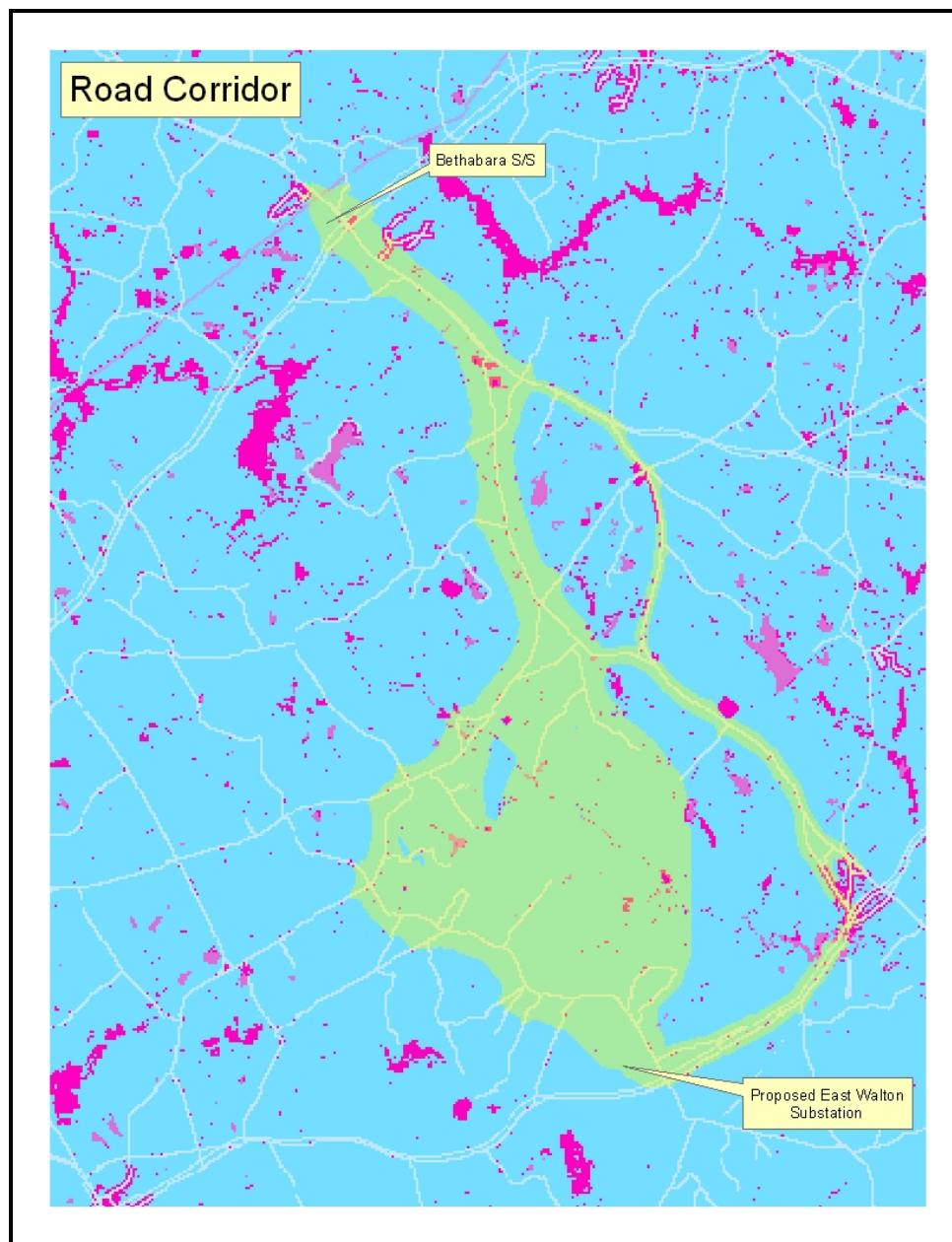
The Macro Corridor boundary is determined by the first statistical break in its histogram. A statistical break occurs when the grid cell value, as shown on the X-axis of the histogram, abruptly decreases.



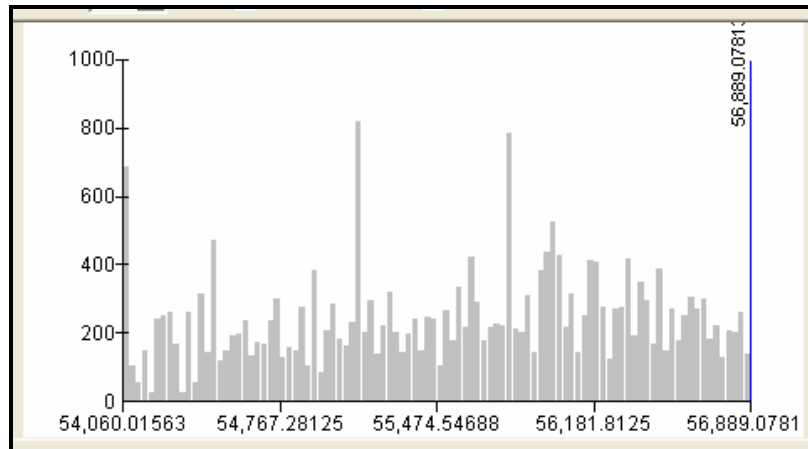
East Walton – Bethabara 230 kV Transmission Line #1 Cross-Country Macro Corridor



East Walton – Bethabara 230 kV Transmission Line #1 Cross-Country Histogram



East Walton – Bethabara 230 kV Transmission Line #1 Roadside Macro Corridor



East Walton – Bethabara 230 kV Transmission Line #1 Cross-Country
Macro Corridor Histogram

In the Cross-Country Macro Corridor Histogram, the X-axis represents “grid cell values” and the Y-axis represents the “number of grid cells” These figures show that a statistical break occurs after five percent on the X-axis, the grid cells values. This five percent area is the area of greatest suitability for Macro Corridor generation. The variable-width Macro Corridors may have a width of as much as a mile or greater for segments that have substantial length through areas of high suitability, while still allowing enough width in the low suitability areas for the right-of-way requirements of the project.

Description of the East Walton-Bethabara Macro Corridor

The Macro Corridors were developed based on the areas of greatest opportunity in the suitability grid. The suitability grid maximizes use of the most suitable areas for a transmission line and minimizes potential impacts to land use, land cover, environmental and cultural resources.

Macro Corridor Land Use/Land Cover Statistics

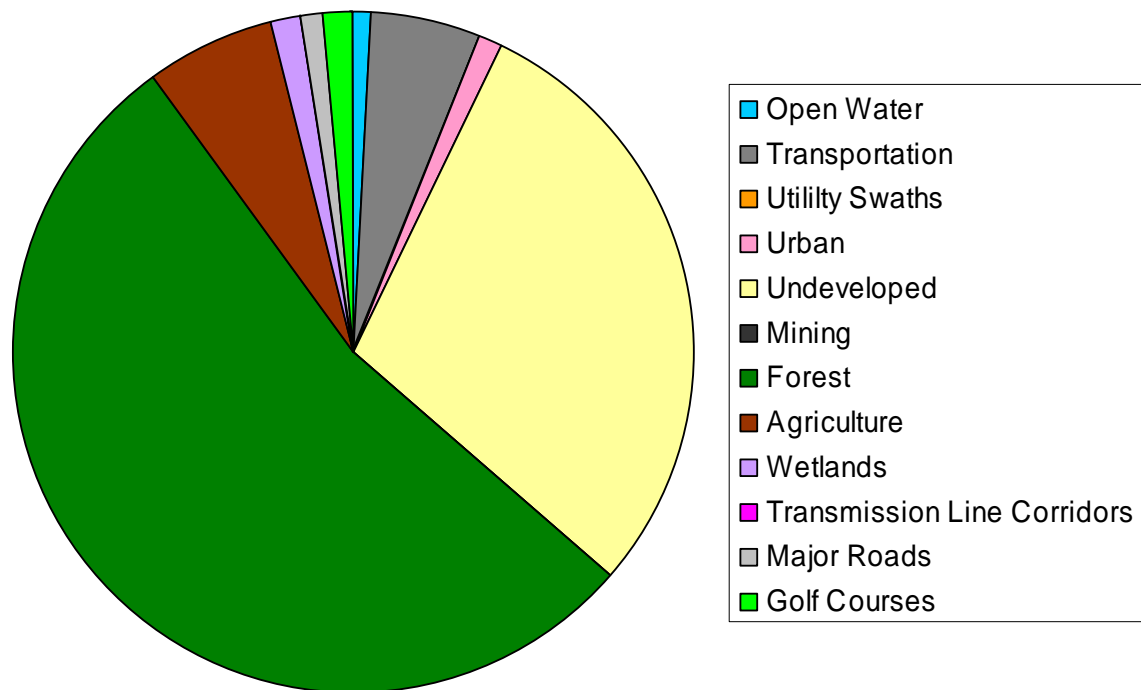
The satellite imagery was used to generate the land use and land cover for the East Walton-Bethabara #1 Macro Corridor areas. The majority of the study area, 89.0% or 95.34 acres, consists of established rural land uses including 53.6% forest, 6.2% agriculture and 29.2% undeveloped land. Rural residential development exists throughout the Macro Corridor area.

EAST WALTON-BETHABARA #1 MACRO CORRIDOR LAND USE-LAND COVER STATISTICS

LULC	Cell Count	Acres	Percent
Open Water	390	0.90	0.8%
Transportation	2440	5.60	5.2%
Utility Swaths	20	0.05	0.0%
Urban	541	1.24	1.2%
Undeveloped	13617	31.26	29.2%
Mining	0	0.00	0.0%

Electric Alternative Evaluation Study and Macro Corridor Study Report

Forest	25036	57.47	53.6%
Agriculture	2881	6.61	6.2%
Wetlands	553	1.27	1.2%
Transmission Line Corridors	0	0.00	0.0%
Major Roads	504	1.16	1.1%
Golf Courses	712	1.63	1.5%
		107.19	100.0%



Cross-Country Macro Corridor

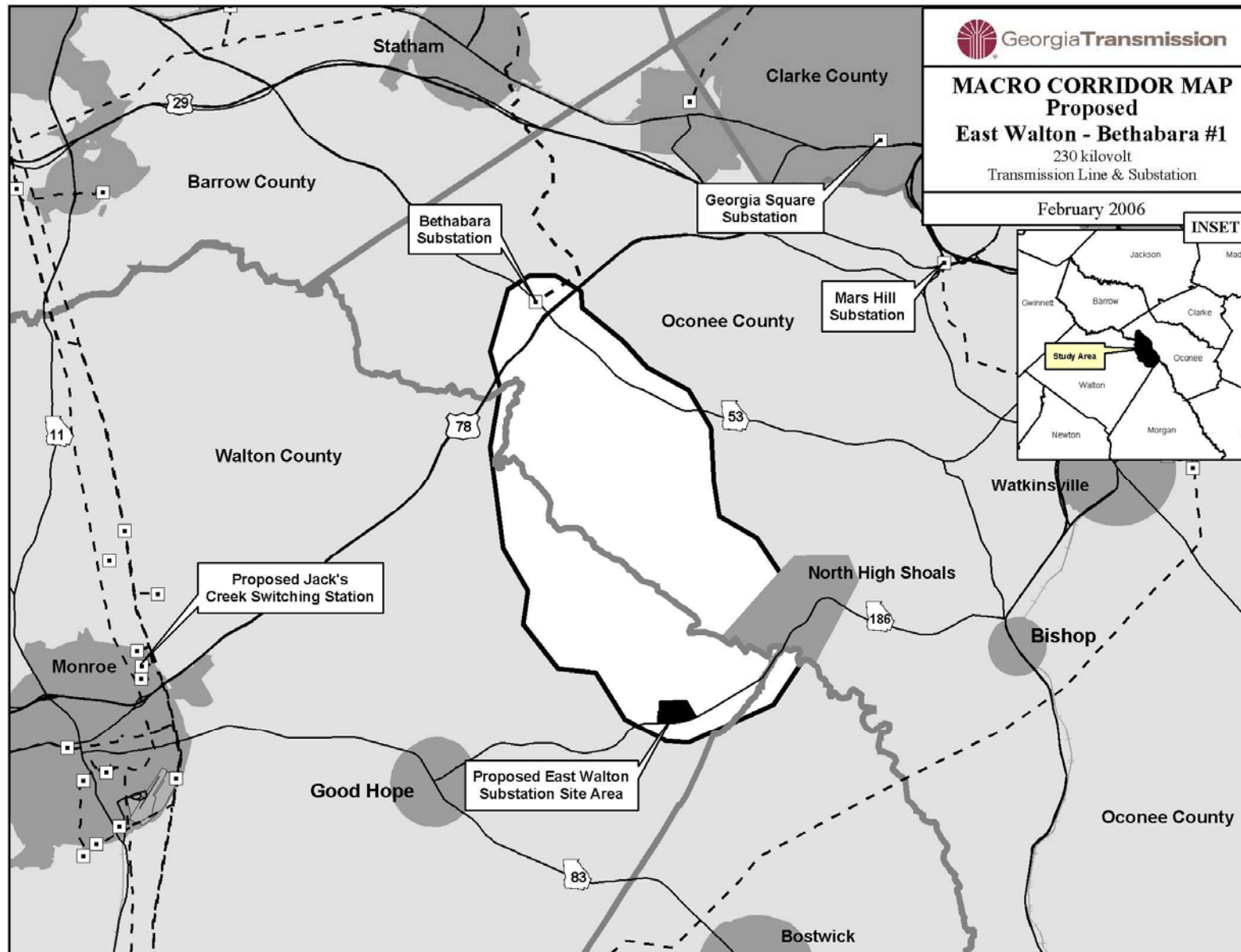
The Cross-Country Macro Corridor starts at the proposed East Walton 500/230 kV Substation and travels in a north northwest direction for approximately 8.5 miles to the location of a proposed Bethabara 115/25 kV substation. The proposed Bethabara #1 Substation site location would be in the area near the intersection of U.S. Highway 78 and State Road 53 in Oconee County. The proposed Bethabara -East Walton 230 kV Transmission Line Macro Corridor crosses approximately 5.6 miles of Oconee County and approximately 2.9 miles of Walton County.

Electric Alternative Evaluation Study and Macro Corridor Study Report

The Cross-Country Macro Corridor crosses the hydrology, transportation and recreation resources listed in the chart below.

Hydrology
Rivers
Apalachee River
Streams > 5-cfs
Lane Creek
Turkey Creek
Floodplains Crossed
Apalachee River
Lane Creek
Turkey Creek

Transportation
State Routes
US 78 SR 10
SR 53
SR 186



Define the Project Study Area

The study area is defined by the outer boundaries of the Macro Corridors. The boundaries allow for the development of all feasible corridors, provide adequate opportunity to minimize significant environmental impacts and focus the study efforts to an area necessary to accomplish the selection of a network of alternative corridors and a preferred route.

The study area for the East Walton –Bethabara #1 230 kV Transmission Line Project includes portions of Oconee and Walton Counties, Georgia. The definition of the study area began with the generation of a Macro Corridor between the proposed East Walton 500/230 kV Substation and the proposed Bethabara 115/25 kV Substation. The proposed East Walton Substation site is located in Walton County at the intersection of Jones Woods Road and Highway 186. The proposed Bethabara #1 substation will be located within Oconee County, Georgia in the vicinity of the Bethabara 115/25 kV substation.

The study area is approximately 26 square miles (16,682 acres) within a perimeter of 21.5 miles. The proposed East Walton-Bethabara #1 230 kV Transmission Line would be approximately 8.5 miles long.

Study Area Description

This section provides a description of the physical features of the study area. It also comments briefly on other considerations, such as, community benefits that are important but not included in the GIS database.

Land Use/Land Cover

The satellite imagery was used to generate the land use and land cover for the proposed East Walton-Bethabara #1 230 kV study area. The majority of the study area, 89.0% or 95.34 acres, consists of established rural land uses including 53.6% forest, 6.2% agriculture and 9.2% undeveloped land. The population center is High Shoals, Georgia.

Transportation

The East Walton-Bethabara #1 transportation corridors include the State Routes listed in the chart below.

State Routes
US 78 SR 10
SR 186
SR 53

The major impact to the existing transportation system in the East Walton-Bethabara #1 area would be where the proposed transmission line crosses roads. Transportation of equipment to the job site could temporarily affect traffic during loading and unloading.

Airports

There are no airports in the study area.

Terrain

The study area terrain is rolling with a high elevation of 841 feet and low of 563 feet.



East Walton-Bethabara Transmission Line Macro Corridor Terrain Model

Hydrology

The Apalachee River runs through of the study area.

Streams with > 5 cfs Flow Rates

GTC collected data and mapped streams in the project area with a >5 cubic feet per second (cfs) flow rate because those streams are more difficult to cross during construction and maintenance. Digital Elevation Models (DEMs) were obtained from the Georgia GIS Data Clearinghouse and used in Corridor Analyst to delineate watersheds from various points along the project area streams. The methodology was used to determine land areas needed to generate 5-cfs stream flows is described in the next paragraph.

A mean annual runoff of 0.9 cfs/mi² for streams in this basin was used to determine the land area of a basin that will be drained before the water reaches a flow of 5 cfs. This measure was obtained from the USGS Map of Georgia Showing Average Annual Runoff. It was determined that the land area required to generate such a flow in this basin is approximately 5.56 mi². Drainage basins were delineated to find those with total land areas at this limit. Streams below the lower boundary of each basin and subsequent downstream reaches were selected as those with flows of greater than 5 cfs.

The East Walton – Bethabara 230 kV study area streams with greater than 5-cfs flow are listed in the chart below.

Hydrology
Rivers
Apalachee River
Streams > 5-cfs
Lane Creek
Turkey Creek

Floodplains

Executive Order 11988 directs Federal Agencies to avoid to the greatest extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. The location of floodplains and other flood hazard areas is identified using Insurance

Rate Maps produced by the Federal Emergency Management Agency (FEMA).

Oconee and Walton Counties participate in the Federal Emergency Management Agency's National Flood Insurance Program. The study corridor encounters floodplains associated with the streams listed below.

Floodplains Crossed
Apalachee River
Lane Creek
Turkey Creek

Wetlands

Section 404 of the Clean Water Act charges the U.S. Army Corp of Engineers with the regulation of discharges of “dredged or fill” material into waters of the United States, including wetlands and other special aquatic sites.

USFWS National Wetland Inventory (NWI) Maps were used to identify wetland areas during Macro Corridor identification activities. When the preferred corridor is selected, GTC will contract with qualified consultants to conduct a wetland delineation of all wetland resources within that corridor.

Sensitive Areas

There are two National Forests in Georgia, the Chattahoochee National Forest and the Oconee National Forest. The proposed project is located in the vicinity of the Oconee National Forest and is not near the Chattahoochee National Forest.

There are three National Wildlife Refuges (NWR) managed by the U.S. Fish and Wildlife Service in Georgia, the Okefenokee National Wildlife Refuge, Piedmont National Wildlife Refuge and the Savannah National Wildlife Refuge. The proposed project is not located in or near any of these National Wildlife Refuges.

Throughout Georgia, the Parks, Recreation and Historic Sites Division of the Georgia Department of Natural Resources operate 44 State parks and 14 Historic Sites. The State of Georgia operates the Hard Labor Creek State Park that is located 8.5 miles south of the study area. Also, the State of Georgia operates the Fort Yargo State Park that is located 8 miles north of the study area.

The National Park Service (NPS) of the U.S. Department of the Interior (USDI) operates 10 units in the State of Georgia, including facilities such as National Battlefield Parks, National Historic Sites and National Monuments. There are no NPS managed properties in or near the study area.

Recreation Resources

There are no Recreation Resources in the study area.

Archaeology and Historic Structures

Section 106 of the National Historic Preservation Act (NHPA) requires that any Federal agency review the impact of any undertaking (construction, loan guarantees, contract approvals, permit

approvals, etc.) on historic properties. Historic properties, for the purposes of Section 106 review, are those properties listed in or eligible for listing in the National Register of Historic Places. The Section 106 review process is administered by the Advisory Council on Historic Preservation that in turn delegated this responsibility to the Historic Preservation Division of the Georgia Department of Natural Resources (GADNR). The GADNR is responsible for implementing 36 CFR Part 800, the Protection of Historic Properties.

Brockington & Associates, Inc. and Historic Preservation Consulting provided information on listed National Register of Historic Places historic and prehistoric cultural resources located within the project boundary. This information was identified through background research at the State Site Files Database maintained by the Department of Anthropology, University of Georgia and the Historic Preservation Division of the Georgia Department of Natural Resources.

There is one NRHP listed historic district, High Shoals, Georgia and one NRHP listed archaeology site in the study area.

Task 3: Field Classification and Site Visits

Satellite imagery and site visits provided an overview of the general land uses, land cover and environmental conditions in the Macro Corridor.

Macro Corridor Study Summary

The East Walton-Bostwick-Rockville Macro Corridor, East Walton-Jack's Creek, and East Walton-Bethabara represent the areas of greatest suitability for the proposed East Walton-Rockville 500 kV Transmission Line, East Walton 500/230 kV Substation, East Walton-Bostwick 230 kV Transmission Line, Bostwick 230 kV Switching Station, East Walton-Jack's Creek 230 kV Transmission Line and the East Walton-Bethabara 230 kV Transmission Line.

RUS will hold a Scoping Meeting on April 17, 2006, from 5 PM – 7 PM at the Carver Middle School Gymnasium in Monroe, GA and April 18, 2006 from 5 PM – 7 PM in Madison-Morgan Cultural Center in Madison, GA so everyone interested in the project can review and comment on the Macro Corridor. The meeting will be advertised in the Federal Register and local newspapers. The comments gathered at the meeting will be input into the Alternative Corridor site selection process.

Once the Alternative Corridors are refined, a Preferred Route will be selected. State of Georgia Title 22 public meetings will be held in the study area for review and comment on the Preferred Route.